Environmental Restoration, LLC (ER) Response to Task Order Selection Process for the Niagara Falls Boulevard Site RV1

September 21, 2015

LOCATION:
1 Van Houten Street
Paterson, NJ
Passaic County, NJ

NARRATIVE SUMMARY:

In 1978, the U.S. Department of Energy conducted an aerial radiological survey of the Niagara Falls region and found more than 15 properties having elevated levels of radiation above background levels. It is believed that, in the early 1960s, slag from the Union Carbide facility located on 47th Street in Niagara Falls was used as fill on the properties prior to paving. The Union Carbide facility processed ore containing naturally-occurring high levels of uranium and thorium to extract niobium. The slag contained sufficient quantities of uranium and thorium to be classified as a licensable radioactive source material. Union Carbide subsequently obtained a license from the Atomic Energy Commission, now the Nuclear Regulatory Commission, and the State of New York; however, the slag had already been used as fill throughout the Niagara Falls region prior to licensing. Based on the original survey and subsequent investigations, it is believed that the radioactive Union Carbide slag was deposited on the NFB site.

The Niagara Falls Boulevard Site is located in a mixed commercial and residential area of Niagara Falls, New York. The site consists of two parcels, namely 9524 and 9540 Niagara Falls Boulevard. This site encompasses approximately 2.53 acres. Currently, the 9524 Niagara Falls Boulevard property contains a bowling alley and an asphalt parking lot; the 9540 Niagara Falls Boulevard property contains a building supply business and an asphalt parking lot. The properties are bordered to the north by a wooded area; to the east by a church; to the south by Niagara Falls Boulevard, beyond which is a residential area; and to the west by a hotel and residential area.

Analytical results obtained from New York State, USEPA Pre-Remedial Program and USEPA Removal Program assessments indicate that material comprising the earthen layer of the majority of this site property is contaminated with radionuclides significantly higher than at background conditions (i.e., greater than 2x background concentrations). The contamination is present underneath:

- ✓ The aforementioned asphalt parking lot.
    - o There is minimal shielding provided by the asphalt and there are breaches throughout the parking lot that exhibit even higher readings of gamma radiation and provide a greater chance of airborne material to migrate.
- ✓ The surrounding woods.
    - o The slag has been deposited well beyond the asphalt parking lot.
    - o There are signs of the public spending time in these wooded areas (Bottles, trash, makeshift seating areas, fire pits)
- ✓ Sections of the Bowling Alley

- These sections were constructed after the slag fill was deposited and located on top of the radioactive contamination.
- The Northern vestibule.
- The walk in refrigerator located on the Southwest side of the building.

✓ Sections of the Building Supply Business
- These sections were constructed after the slag fill was deposited and located on top of the radioactive contamination.
- The additional offices added to the Southwest side of the building.
- The Northern warehouse of the building.

The purpose of this Task Order is to eliminate the threat of:
- ✓ Direct contact with the radioactive material via inhalation.
- ✓ Off-Site migration of radioactive material via clothing, footwear, vehicle traffic.
- ✓ Exposure to elevated gamma radiation located throughout the site.
- ✓ Exposure of elevated radon levels located inside the Building Supply Business.

Statement of Work:

Depending on various factors, there may be one or a combination of the tasks listed below required to be performed.

- ✓ **Pilot Study Shielding :** There is a possibility that shielding may be impl emented in certain areas instead of removing the contaminated material. If so, radiation test shielding will be conducted in areas designated by the USEPA On -Scene Coordinator (OSC). This may include the outdoor property and possibly interior spaces. Su rfaces that may be shielded could be concrete, asphalt or earthen layer. A small forklift will be required for lifting ½" steel plates of a 3' X 3' dimension. The weight of ½" plate is 20.5 lbs/ft^2. Six plates of ½" X 3' X 3'. Weight per sheet is 184 l bs. A 4" pre cast concrete slab of a 3' X 3' minimum dimension is also required for the radiation test shielding. Directions to pick up location to be provided by OSCs. This material will be provided by the government.
- ✓ **Above Grade Shielding:** The contractor may have to provide installation of shielding in accordance with a detailed action/work plan. The plan is to be developed after test shielding has been completed and the technical team reviews are completed. This shielding may be installed in areas of radiation levels designated suitable by the technical team. Shielding design may include ½" – 1" steel plates (multiple panels) and/or 4000 psi concrete. The shielding may also contain a Lead (Pb) layer sealed within the other shielding materials.
- ✓ **Excavation of asphalt, concrete and portions of the contaminated slag-soil prior to shielding:** This option could potentially entail excavation of asphalt, concrete and soil/aggregate from the parking lot, buildings and wooded areas. Material will be stage d properly for eventual disposal. Once designated amount of material is removed, shielding will be installed as per technical team specifications.
- ✓ **Excavation of asphalt, concrete and all of the contaminated slag -soil without shielding:** This option coul d potentially entail excavation of asphalt, concrete and soil/aggregate from the parking lot, buildings and wooded areas. Material will be staged

properly for eventual disposal. Once designated amount of material is removed, clean fill, concrete and/or asphalt will be installed.

- ✓ **Off-site disposal of all hazardous substances identified and recovered during the course of the removal action.**
- ✓ **Off-site disposal of hazardous waste and/or substances will comply with the Off -Site Rule, 40 CFR 300.440.**
- ✓ **Conduct al l operations in accordance with applicable Federal and State safety standards.**
- ✓ **Additional technical direction will be provided by the OSC through daily work orders**.

EPA considers some of the planned activities in this SOW to be subject to Construction Wage Rate Requirements (formerly known as the Davis Bacon Act) wages.

Questions

1. Describe how your staffing and resource plan for this Task Order will be implemented to minimize lodging and per diem expenses.

ER proposes a staff of one (1) Response Manager, one (1) FCA, two (2) equipment operators and two (2) laborers to perform the work Associated with the SOW. An office based Transportation and Disposal Coordinator will be utilized on a limited basis for authoring the T&D RFQ, selection of the low bidder/ best value, assistance with vendor scheduling (if disposal is chosen), and waste tracking/CERCLA reporting. The number of personnel assig ned on a daily/ weekly basis may fluctuate depending on the tasks that are self -performed and tasks that are subcontracted. The operator s will perfo rm the work associated with the SOW to include; excavation, shielding if necessary and transportation/disposal. The techni cians will perform dust suppression, spotting for operators, transportation and disposal, restoration act ivities if required and shielding assistance. Depending on location of Pilot Study shielding material, a truck driver with a stake bed truck may be required to pick up and bring shielding back to the site. If transportation and disposal is necessary, ER will transport and dispose of the material to an EPA CERCLA approved facility, etc. A FCA will be assigned to assist in the development of RFQs, develop 1900's and assist with procurement of materials and supplies. As previously mentioned, the quantity and types of personnel will be adjusted as necessary based upon the scheduled tasks and if demolition is necessary. All personnel will be discussed and approved by OSC prior to any mobilization on site.

Personnel Classification	Estimated Quantity
Response Manager - OSHA HAZWOPER Trained	1
Equipment Operator- OSHA HAZWOPER Trained- if necessary	2
Laborers- OSHA HAZWOPER trained- if necessary	2
Transportation and Disposal Coordinator- off site	1
FCA	1

Equipment proposed for the project will be dependent upon the selected action(s) described in

the statement of work, however a stake bed truck will be necessary to perform pilot study shielding along with an all-terrain forklift for lifting and placement of shielding materials. Upon completion of the pilot test shielding and depending on selection of mitigation, a forklift and stake bed truck will be utilized for above grade shielding working along with subcontract concrete work. Excavation and shielding will be conducted by an excavator based on size of area, stake bed truck and subcontract work. Excavation, transportation and disposal efforts will be conducted by an excavator, loader, and skidsteer to support restoration activities. A water wagon w/pump will be utilized for dust suppression. All equipment must be discussed with EPA OSC and approved prior to mobilizing to the site.

Equipment Classification	Estimated Quantity
Dozer or loader- if appropriate based on size	1
Excavator- based on size of area	1
Forklift- all terrain	1
1-ton stake bed truck	1
Tracked Skid Steers- placement of backfill	1
Water Wagon/Pump/Poly Tank/Hose- if demolition required	1
Office Trailer	1
25 kW Generator- Command Post	1

2. Identify any other cost saving measures you may have planned in implementing the SOW for this Task Order

ER will implement the following cost savings measures in the implementation of this Task Order:

- Reduce offsite disposal/municipal waste disposal cost by aggressively using all recycling techniques
- Limiting the number of site personnel
- Purchase of fuel on bulk basis to reduce costs
- Use of electronic reporting for all reporting, unless specifically asked for by US EPA
- Solicit RFQ 's (transportation and disposal, metal plates, concrete suppliers, equipment, laboratory services backfill and topsoil vendors)
- Collect backfill and topsoil samples prior to mobilization in accordance with N Y Standards
- Execute all pre-mobilization activities prior to mobilizing project
- Limit use of expedited mail service (FedEx or UPS). When needed, only use two day service unless emergency.
- Use local vendors for all material to limit shipping costs.
- Utilize extensive network of local vendors to reduce costs when soliciting bids for equipment and supplies
- Procure local laboratory with free pickup and delivery of sample s and sampling supplies to reduce sample shipping cost.
- Identify private utility locator to locate lines
- Upfront discussions with radiation disposal facilities
- Identify lead times for transportation and disposal of radioactive soils and slag
- Identify lead times for shielding materials

3. Based on the SOW provided, provide a brief outline of tasks/subtasks and indicate any critical path tasks to be performed as well as prioritizing each task identified.

ER provides the following outline of tasks and subtasks as requested:

Site Pre-mobilization

- On-Site meeting with OSC
- Site Walk, - discuss pilot study testing, transportation and disposal facility personnel
- Develop health and safety plan with hospital routes for review and approval
- Identify permits if necessary
- Develop site specific work plan and Staffing Plan detailing anticipated project activities, approach and training requirements.
- Vendor Solicitations for equipme nt, portable toilet s, electrical, mobile command post, topsoil, backfill, analytical laboratory services, transportation and disposal , concrete vendors, specialty metal fabricators.
- Coordinate with water residential property owners if appropriate or Local municipality for water source for dust control (if none available on site), bring wat er on site via water wagon.
- Sample collection for topsoil and backfill
- Investigate internet connectivity options
- Contacting electric company for power (if generated power is not selected by OSC)
- Fire Department, Police Department Coordination, Hospital Route.
- Investigate tasks for DBA applicability and build up rates for submission to CO

Although there is quite a list of pre -mobilization activities, most are considered critical as these activities direct schedule. Pre-mobilization activities , once accompli shed and prior to mobilization activities, provide a good foundation of schedule and approach, promote on site efficiency and a "hit the ground" running approach to site cleanup. The information gathered during the site visit is vital to the development of the work plan which will dictate the success or failure of the project. This time is also important to develop good communication between the OSC, RM, radiation disposal vendors, specialty metals, and concrete vendors along with the work plan to ensure the approach and direction are agreed upon prior to mobilization. If pre - mobilization activities do not occur prior to mobilization, there could be the potential for schedule slippage, confusion of assignments and improper equipment procurement, creating potential unnecessary cost overruns to the site. These pre -mobilization activities prevent site delays and allow for cost savings which is critical with federal projects.

Site Mobilization

- Mobilize ER personnel and equipment
- Establish command post, utilitie s, portable toilets, internet connectivity, and temporary secure equipment storage
- Determine Exclusion Zone, Contamination Reduction Zone, and Support Zone on each residential property
- Award RFQs from pre-mobilization activities
- Determine level of protection based off of HASP

Pilot Study Shielding

- Mobilize to site

- Preview areas for pilot study
- Send truck driver with vehicle to pick up shielding materials
- Placement of shielding materials
- Analyze area for shielding efficiency
- OSC to determine approach to soil/slag, asphalt areas, and potential excavation areas based off of pilot study effectiveness.

Above Grade Shielding

- Develop a detailed action work plan based off pilot test study
- Shielding materials may include steel plates and 4,000 lb concrete
- Shield may also include a lead layer combined with other shield material
- Order steels sheets and or concrete in accordance with SOW based on review and approval of test study

Excavation of asphalt, concrete and portions of the contaminated slag -soil prior to shielding

- Assess asphalt and concrete for removal in parking lot, wooded area and building and staging for transportation and disposal
- Excavate asphalt and concrete with soils and stage in designated area. Collect disposal sample and run analytical
- Once area designated by the OSC is defined, employ proper shielding techniques per specifications by technical team

Excavation of asphalt, concrete and all of the contaminated slag-soil without shielding

- If excavation is conducted and shielding not required, exca vate, stage and sample asphalt, soil and concrete- collect disposal sample and run disposal analysis
- Restore area with backfill, topsoil, asphalt and or/concrete under the direction of the OSC.

Transportation and Disposal/Recycle

- Obtain and analyze samples (if appropriate) to profile radioactive materials
- Identify items/materials that may be recycled if appropriate rather than transported for treatment/disposal.
- Award RFQ for transportation and disposal services (radioactive waste solids).
- Check proposed facilities for compliance with the (CERCLA) off -site rule, 40 CFR 300.440.
- Develop profiles, manifests in accordance with disposal facility requirements
- Prepare and containerize any waste requiring offsite disposal according to the selected transportation/disposal/recycling method(s)
- Scheduling of trucks and shipment schedules
- Loadout of materials for disposal
- Waste tracking and reporting

Due to the nature of T&D of materials from the project location, the subcontracting and logistics for the transportatio n/disposal/recycling task are critical path items for radioactive waste. Disposal facilities are limited therefore upfront work on T&D must be coordinated during the initial pre -mobilization activities. These items/tasks must be coordinated with as much lead

time as possible due to the specialty shielding requirements, steel sheets, potential lead requirements, and long travel time for transportation and disposal efforts.

Demobilization
- Decontamination of Equipment
- Demobilize all ER and Subcontractor personnel and equipment
- Demobilize all rental equipment that has not been previously removed
- Prepare all final reporting and cost reconciliation

The project schedule is provided in **Attachment A** that describes both the task associated with the project and the critical path of the project.

4. **Indicate which response activities your company will be self -performing and which, if any, will be subcontracted. Identify any anticipated labor categories that will be utilized subject to Construction Wage Rate Requirements.**

ER will self-perform all the administrative task s and specific on site operational tasks (such as decontamination, assistance with pilot testing study, concrete placement, site restoration , topsoil placement and T&D load -out) associated with the cleanup. A Response Manager will be dispatched to the site to manage operations to includ e; subcontractor management (concrete shielding, development, specialty steel metal fabrication, site restoration (concrete/asphalt), transportation and disposal, demobilization activities, and financial obligations. A Field Cost Accountant will mobilize to the site to assist the Response Manager in procurement activities and developing the cost tracking 1900 -55's. Upon completion of transportation and disposal, the Response Manager will develop and provide to the OSC a Waste Generation Report.

ER will subcontract concrete vendors, specialty metal fabricators, a laboratory for backfill and topsoil samples and potential disposal samples, asphalt vendors and equipment ren tal. Transportation and Disposal will be managed by ER however subcontracted to a vendor that is in CERCLA compliance and have all necessary permitting/license within the states provided under the RFQ.

Labor Categories anticipated as CWA Work include;

Operator- excavation, restoration activities
Labor- excavation and restoration activities

5. **Identify sites at which your company has had relevant/similar operational experience. Please be specific as to which tasks on these Sites are relevant to this SOW.**

Environmental Restoration, LLC (ER) has performed numerous Task Orders under USEPA Emergency and Rapid Response Services (ERRS) Contracts that are similar in nature to this project. These Task Orders mirror the tasks required in this SOW. Additionally, ER has performed commercial work similar to the SOW and are included.

Flat Top Mine
Uranium mining activities occurred from 1950s to 1964 under the General Mining Laws and Public Law 357, no restoration at the time was required. Uranium was detec ted in soil with

concentrations up to 770 parts per million (ppm) and in surface water with concentrations up to 558 micrograms per liter (µg/L). Other elements of concern with elevated levels in the surface water were arsenic with concentrations ranging f rom 457 to 536 µg/L, vanadium with concentrations ranging from 73 to 258 µg/L, and molybdenum with concentrations ranging from 894 to 1,730 µg/L. The property being addressed is 45 acres of privately owned ranch land with active herds of cattle and sheep with access by various wildlife.

The highest concentration of contamination was found surrounding an old mine pit which became the largest pond on the north side of an old high wall. Extreme drought dropped the water levels in the mine pit and ER mobiliz ed in the spring of 2013 to reclaim the pit area. Remaining pond water was solidified and pit was filled with surrounding mine tailings and graded for positive drainage. Low permeability soils were utilized from an onsite borrow source to cap the 10 acre w aste pit and two 700ft wells were drilled to replace the drinking water source for livestock. Manure was added to the cap to amend the soil and promote re -vegetation to establish range land for livestock grazing. A total of 67,140 CYs of tailings were move d to fill the waste pit and 16,110 CYs of clean fill was utilized for constructing the cap.
Shortly after seeding the area experienced several consecutive weeks of heavy rain which created small ravines and washed away straw bales and grass seeds. ER mobil ized to provide temporary erosion control measures and access road improvements until additional site funding becomes available for long term solutions. Rip rap was imported and placed to eroded channels to slow storm water flow and prevent further erosion . In all 402 tons of rock, 347 tons of road base and 128 tons of rip rap were utilized.

Additional funding was allotted to the project and ER returned to provide long term protection of the former waste pit by re -grading 3 acres of steep slopes and more c omprehensive erosion control and re -vegetation work. Steep areas of eroded mine tailings were graded to a 3:1 slope and capped with 2,600 CYs of onsite low permeability borrow soils. Areas were again amended with manure, seeded with native species mix, and erosion mat was installed on all sloped areas. Additionally, 1.25 miles of access roads were constructed on site to allow access for future reclamation work and scientific animal studies relating to the project. ER imported roughly 1,750 tons of rock and 2,000 tons of road base for construction of the access roads and drainage channels.

Pierre Radiation

Two radioactive source materials were found in a storage area; with background readings of 17 - 18 µrem/hr and 300 counts per minute of beta on the Ludlum 19 and 750 counts per minute of alpha and beta combined on the Ludlum E600. Items were packaged and stored locally until transportation and disposal could be arranged in conjunction with another project in an effort to reduce costs.

Meeker Radiation

A ‘ collection’ of items were discovered in a dilapidated structure after the passing of the property owner. Radium - 226 (226Ra), and other energy peaks were detected on the property. 226Ra is a strong daughter product associated with the decay of Uranium -238 (238U), a primary component of uranium ore mined in the Colorado and Utah region. Background gamma radiation was detected ranging from 8 -11 micro -R/hr. approaching the entryway to the house gamma readings on both a Ludlum-19 gamma detector and a SAM 940 in dicated a jump to 40-80 micro-R/hr within about 10 feet of the door. At the door threshold the readings moved up to 100 -125

micro-R/hr. These levels jumped again to 200 -300 micro-R/hr once the door was opened. ER unloaded 120cy of debris from 1000sf house looking for HHW and the rad source. Among the items discovered was 20 lbs. of uranium ore in a 5 gallon bucket. The uranium was packaged and disposed of. ACM was also discovered within the interior of the structure, ER prepared the required work plan, heal th and safety plan and issued demolition notification to the State for complete removal of the structure and accompanying contaminated soils. In all ER removed, packaged and disposed of 20 lbs. of uranium ore, 120 cy of ACM and 120 cy of non -hazardous debris.

Saranac Lake Response

ER responded to DPW bldg, 95 Van Buren Street, Saranac Lake, NY 12983
DEC Reports "According to law enforcement sources, Box A contained multiple items, one labeled U ore visible upon opening the box, ID'd as Ra226. Box B containe d 1 brown bottle containing a powder, ID'd as Th232." NYSDOH Bureau of Environmental Radiation Protection (BERP) Staff performed the following: evaluate material found by taking appropriate readings, use Orteck to identify and confirm isotopes of interest. Their staff collected and tested appropriate equipment including emergency response kits, alpha probe and additional sampling supplies.

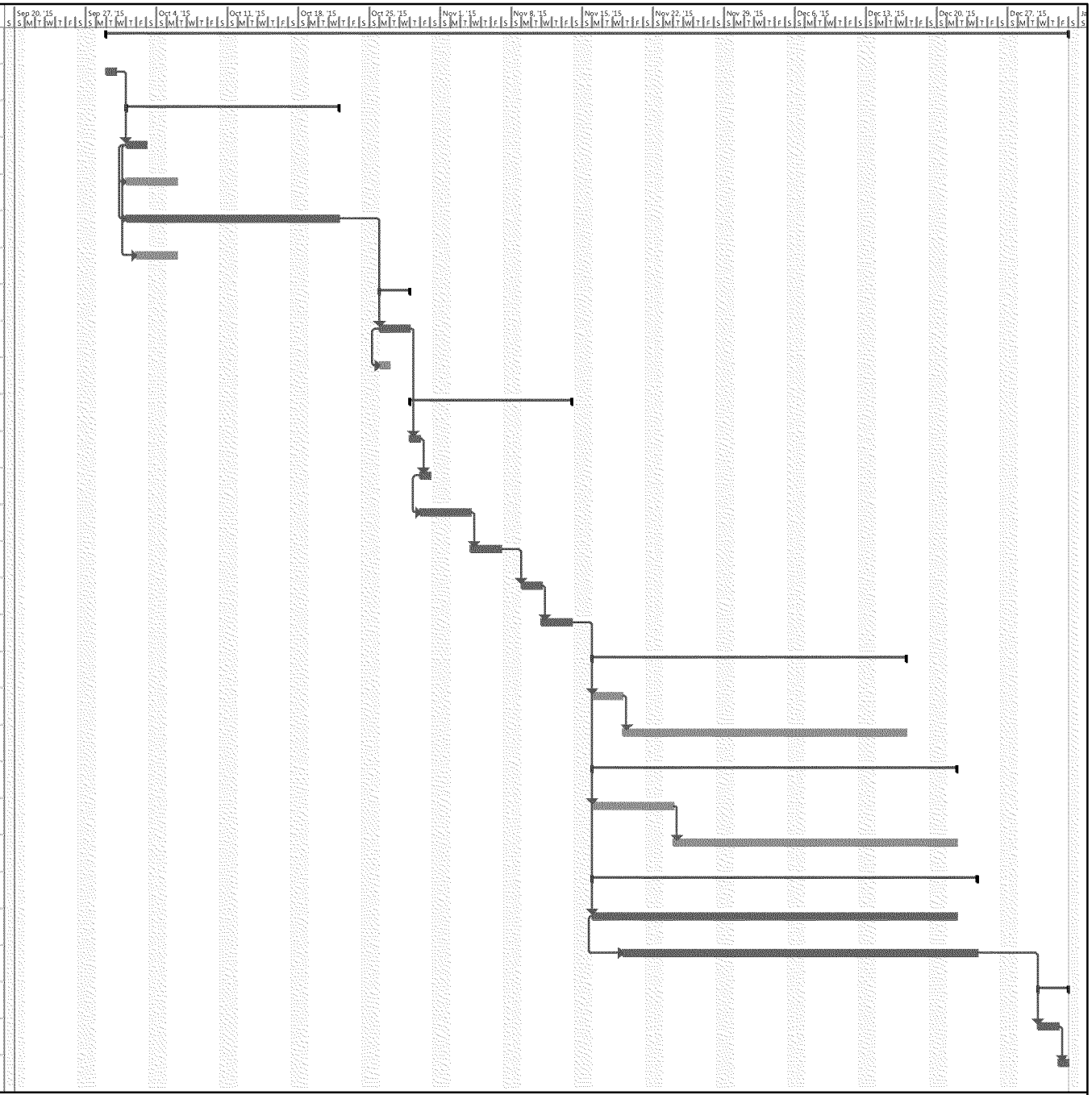
ER solicited bids to radioactive waste vendors to pack materials and provide transportation/disposal. Cabrera Envir onmental Services provided the best value for packaging and disposal. Cabrera packed the following radioactive waste.

ITEM	Quantity	Isotope	Dose Rate (µRem/hr) @ 1cm	Comments
Rocks/Ore	18 pcs	U-238**	200-1750	Various small pieces
1" glass marbles	3	Ra-226**	50	----------
.5" Glass marbles	3 bags/25 per bag	----------	45	----------
Jar of Thorium powder	5 grams	----------	----------	1 jar
Jar of Thorium powder	3 grams	----------	----------	1 jar
Am-241 check source	3 pieces	Am-241*	----------	1 µCi each, certificate dated Jan 2003
Uranyl nitrate hexahydrate	9 containers	U-238**	75	~2 ounces per container
Uranyl acetate dihydrate	12 containers	U-238**	100-200	~2 ounces per container
Thorium nitrate	1 amber glass jar (1 lb)	Th-232	3000	JT Baker reag ent dated 10/1962
Metal box and carboard from inside	2 boxes contained the above items	-------		24" X 24" X 9"

ATTACHMENT A

Project Schedule

ID	Task Mode	Task Name	Duration	Start	Finish
1		**Niagara Falls Boulevard Site RV1**	**69 days**	**Tue 9/29/15**	**Fri 1/1/16**
2		Task Order Award	1 day	Tue 9/29/15	Tue 9/29/15
3		**Pre-mobilization activities**	**15 days**	**Thu 10/1/15**	**Wed 10/21/15**
4		Site Walk, OSC, vendors	2 days	Thu 10/1/15	Fri 10/2/15
5		Development of HASP	3 days	Thu 10/1/15	Mon 10/5/15
6		RFQ development and award	15 days	Thu 10/1/15	Wed 10/21/15
7		Disposal Sample Collection	2 days	Fri 10/2/15	Mon 10/5/15
8		**Site Mobilization**	**3 days**	**Mon 10/26/15**	**Wed 10/28/15**
9		Site Setup	3 days	Mon 10/26/15	Wed 10/28/15
10		CRZ, EZ, SZ	1 day	Mon 10/26/15	Mon 10/26/15
11		**Pilot Study Shielding**	**12 days**	**Thu 10/29/15**	**Fri 11/13/15**
12		Preview areas	1 day	Thu 10/29/15	Thu 10/29/15
13		mobilize to pick up shielding materials	1 day	Fri 10/30/15	Fri 10/30/15
14		placement of shielding	3 days	Fri 10/30/15	Tue 11/3/15
15		assess effectivenes of shielding	3 days	Wed 11/4/15	Fri 11/6/15
16		review data	2 days	Mon 11/9/15	Tue 11/10/15
17		Develop detailed workplan	3 days	Wed 11/11/15	Fri 11/13/15
18		**Above Grade Shielding**	**23 days**	**Mon 11/16/15**	**Wed 12/16/15**
19		order materials for shielding	3 days	Mon 11/16/15	Wed 11/18/15
20		Placement of Shielding	20 days	Thu 11/19/15	Wed 12/16/15
21		**Excavation prior to Shielding**	**26 days**	**Mon 11/16/15**	**Mon 12/21/15**
22		Excavation prior to Shielding	6 days	Mon 11/16/15	Mon 11/23/15
23		Placement of shielding	20 days	Tue 11/24/15	Mon 12/21/15
24		**Excavate without Shielding**	**28 days**	**Mon 11/16/15**	**Wed 12/23/15**
25		Excavate asphalt, concrete and soil-stage	26 days	Mon 11/16/15	Mon 12/21/15
26		Restoration	25 days	Thu 11/19/15	Wed 12/23/15
27		**Decontamination/De-mobilization**	**3 days**	**Wed 12/30/15**	**Fri 1/1/16**
28		Equipment Decon	2 days	Wed 12/30/15	Thu 12/31/15
29		Personnel Demobilization	1 day	Fri 1/1/16	Fri 1/1/16



Project: Niagara Falls Boulevard
Date: Sun 9/20/15

Task | Summary | Inactive Milestone | Duration-only | Start-only | External Milestone | Critical Split
Split | Project Summary | Inactive Summary | Manual Summary Rollup | Finish-only | Deadline | Progress
Milestone | Inactive Task | Manual Task | Manual Summary | External Tasks | Critical | Manual Progress